

FOREWORD by Jack Dangermond

At Esri, it has been a true honor for us to witness and observe the numerous accomplishments and advances throughout the history of GIS that have occurred through critically important innovation and data sharing that has been made openly available by the global GIS community. Cristiano Pesaresi, Davide Pavia and their new book help to illustrate the expanding power and roles of GIS, its transformative movement to the web, and the ever-broadening audience of GIS users. Ultimately this publication provides a ready guide for applying GIS as a powerful tool that we can use to envision, plan, and implement a brighter future.

In my lifetime, I have had the amazing fortune to take part in and to help grow GIS as a collaborative community of hundreds of thousands of practitioners distributed throughout the world. During that time, GIS maps have undergone a transformation. A large proportion of GIS maps in use today contain information layers coming from *many* GIS organizations. All GIS data layers possess the wonderful property of being able to be georeferenced and combined with other overlapping GIS data and imagery layers. Often, this integration leads to new and unanticipated insights.

Since the early 1980's as GIS began to catch fire, many GIS practitioners have been creating and sharing their geographic information with each other across countless professional organizations. This open sharing across numerous GIS communities has grown rapidly and expanded across the planet, informed by geographic information science and the universal desire to share their information with others.

Since that time, the global GIS community of practice have taken part in close-knit communities, developed new concepts, and explored new frontiers in geographic data and analysis advancing the Geographic Approach. The global GIS community is tackling a host of issues at scales ranging from local to global, including planet-spanning challenges such as climate, biodiversity, poverty, health, and social justice.

Modern GIS as we know it today could not exist without the data-sharing ethic and the collaborative spirit of cooperation adopted by GIS users everywhere – users who continue to openly share their data and ideas. They are the ones who have built communities, developed new concepts, and explored new frontiers in geographic data and spatial analysis.

Today, we have reached a crucial time in the history of GIS with the geospatial community discovering and focusing on a number of GIS frameworks – from Desktop and Enterprise GIS computing where most information is sourced within each GIS organization focusing on specific geographies. This is evolving, adding a shared web GIS platform where content is being combined from multiple organizations.

Meanwhile, the geospatial community continues to grow and expand its technology in step with global computing trends. In the past decade, GIS on the web has grown and expanded. Meanwhile GIS on desktops and enterprise computing environments continues to expand and evolve as well. One key trend has been the expansion and commitment to enterprise-wide GIS, enabling access to GIS that is expanding rapidly throughout many organizations of all sizes. Geographic computing is delivered using Kubernetes and through open web frameworks for scaling out the implementation of geospatial computing across and between many organizations both large and small.

One of the key trends in GIS has been the expansion of GIS through maps. In the past few years, GIS maps have undergone a stunning transformation. Maps have become powerful and high-performing apps.

It has been a great incentive to closely follow the accomplishments achieved throughout the development of GIS, which is fostering innovations in geographical and interdisciplinary fields, also in the perspective of the GIS community; and Cristiano Pesaresi and Davide Pavia are providing added values with their rigorous work and expertise.

This book is very much about user stories and examples. It helps to define and describe the ever increasing power of GIS, combining methodological reasonings and applied exercises, and showing how GIS can be a universal tool that can be enhanced in the pursuit of a more desirable world.

Jack Dangermond
Esri President